

VAPOR GROWING DEVICE FOR III-V COMPOUND SEMICONDUCTOR

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Abstract

PURPOSE: To control film thickness per ALE (Atomic Layer Epitaxial) cycle easily by the unit of a monomolecular layer and enable the use of low-toxicity solid raw materials for group V raw materials, by switching the flow of raw material gases of group III elements and group V elements on a board crystal.

CONSTITUTION: Group III and group V raw material gases can be supplied alternately by opening or closing each ON-OFF valve 13a, 13b provided at an exhaust port 11a or 11b respectively. When an ON-OFF valve 13a, for example, is closed, a group III raw material gas vomited from a jet 16a flows on the board crystal 15, and is exhausted from the exhaust port 11b with a carrier gas vomited from a gas intake 18. And, when the ON-OFF valve 13a is opened, the group III raw material gas vomited from the jet 16a is exhausted from the exhaust port 11a, and the group III raw material gas on the board crystal 15 is purged by the carrier gas in the gas intake 18. This makes it possible to control the growth in film thickness by the unit of a monomolecular layer, even when low-toxicity solid group V raw materials are used.